

Early Detection and Rapid Response for Aquatic Invasive Plants in Michigan



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Mounting a Response to New Aquatic Invaders

- 3 year grant funded project through U.S. Environmental Protection Agency
 - Great Lakes Restoration Initiative (GLRI)
- Funding Opportunity: EPA R5-GL2010-1
 - Invasive Species Control and Prevention Program 1.B.2
- ~\$970,000 to DNR and project partners
 - Michigan Natural Features Inventory (MNFI)
 - Michigan State University
 - Midwest Invasive Species Information Network (MISIN)



Project Goals

1. Develop an EDRR program for Aquatic Invasive Species

- Coincides with revision of Aquatic Invasive Species State Management Plan (AIS SMP)
 - GLRI Grant “Implementing Michigan’s Comprehensive Aquatic Invasive Species State Management Plan for 2011-2012” (Sarah LeSage - lesages@michigan.gov)
 - New chapter of SMP added specifically to address EDRR

2. Eradicate/control 8 to 10 high threat aquatic plant species

- 6 species listed specifically
 - Brazilian elodea, water lettuce, water hyacinth, parrot-feather, European frog-bit, flowering rush
- Apply EDRR framework and concepts to actual response efforts in the field

EDRR Program Development

- New EDRR section of AIS SMP
 - Listed as one of four main goals in SMP outline
 - Identified as second highest priority (after prevention)
 - Importance of EDRR recognized by partner state agencies (AIS core team)
 - DNR – Wildlife, Fisheries, Parks and Recreation, and Law Enforcement Divisions
 - DEQ – Water Resource Division, and the Office of Great Lakes
 - MDARD – Pesticide and Plant Pest Management, and Animal Industry Divisions
 - MDOT
 - Provides framework and common language for more efficient collaboration and communication among state agencies
 - Implementation table - sets clear strategic actions for program development
 - Incident Command System (ICS) based

EDRR Framework

- Multi-stage program
 - Surveillance/Reporting
 - Verification
 - Assessment
 - Planning and Communication
 - Implementation
 - Monitoring
 - Completion\Restoration



Flowering rush in Oakland County 2011

- Stage-specific details outlined in the AIS SMP – Implementation Table

Eradication and Control Efforts



European Frog-bit



Water Hyacinth



Water Lettuce



Parrot Feather



Brazilian Elodea



Flowering Rush

All photos courtesy of Bugwood.org and through MSUE and MNFI
Referenced from [A Field Guide to Invasive Plants of Aquatic and Wetland Habitats for Michigan](#)
Suzan Campbell, Phyllis Higman, Brad Slaughter and Ed Schools 2010

Impacts of EDRR Species



Flowering rush



European frog-bit



Surveillance

- Previous unverified reports of six target species throughout Michigan
 - Primarily European frog-bit and flowering rush
 - Vast Majority in SE Lower Peninsula
 - Collected from a variety of sources
 - DEQ ANC
 - MAMA/Industry
 - Herbarium records
 - Citizen scientists
 - Previous scientific studies
 - Others



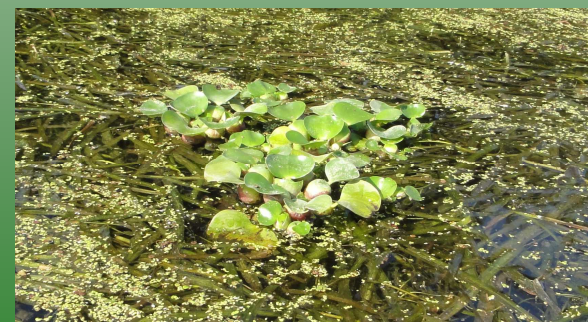
European frog-bit in Saginaw Bay 2011

Verification

- MNFI trained staff conducted site visits
 - Took samples when necessary
 - Consulted with DEQ ANC staff as needed
 - Collaborated with industry and ANC to avoid duplication of efforts
- Assessments done concurrently to meet project deadlines
- Michigan Department of Environmental Quality
 - Aquatic Nuisance Control Program
 - Conducted several verification/assessments
 - Avoided duplicity, increased efficiency
- Originally 35 unverified reports
 - 36 unique locations surveyed in (2011)
 - 34 targeted sites and 17 revisits (2012)

Assessment

- Assessment data sheet developed collaboratively between DNR and MNFI
 - GPS data points
 - Species verified
 - Population density/abundance
 - Site access
 - Connecting waterways
 - Unusual features
 - Potential vectors
 - Photographs



Water Hyacinth in Wayne County 2011

Early Detection

2011

36 Unique Locations Surveyed

35 Detections*

18 flowering rush (FR)

9 European frog-bit (EFB)

6 water hyacinth (WH)

2 water lettuce (WL)

0 parrot feather (PF)**

0 Brazilian elodea (BE)**

13 no species detected (NSD)

*Multiple species found at same unique locations

**DEQ ANC staff determined reports were due to previous misidentifications



More data will be available soon at www.michigan.gov/invasivespecies

Early Detection

2012

34 Unique Locations Surveyed

7 Detections*

6 flowering rush

1 water lettuce

27 no species detected

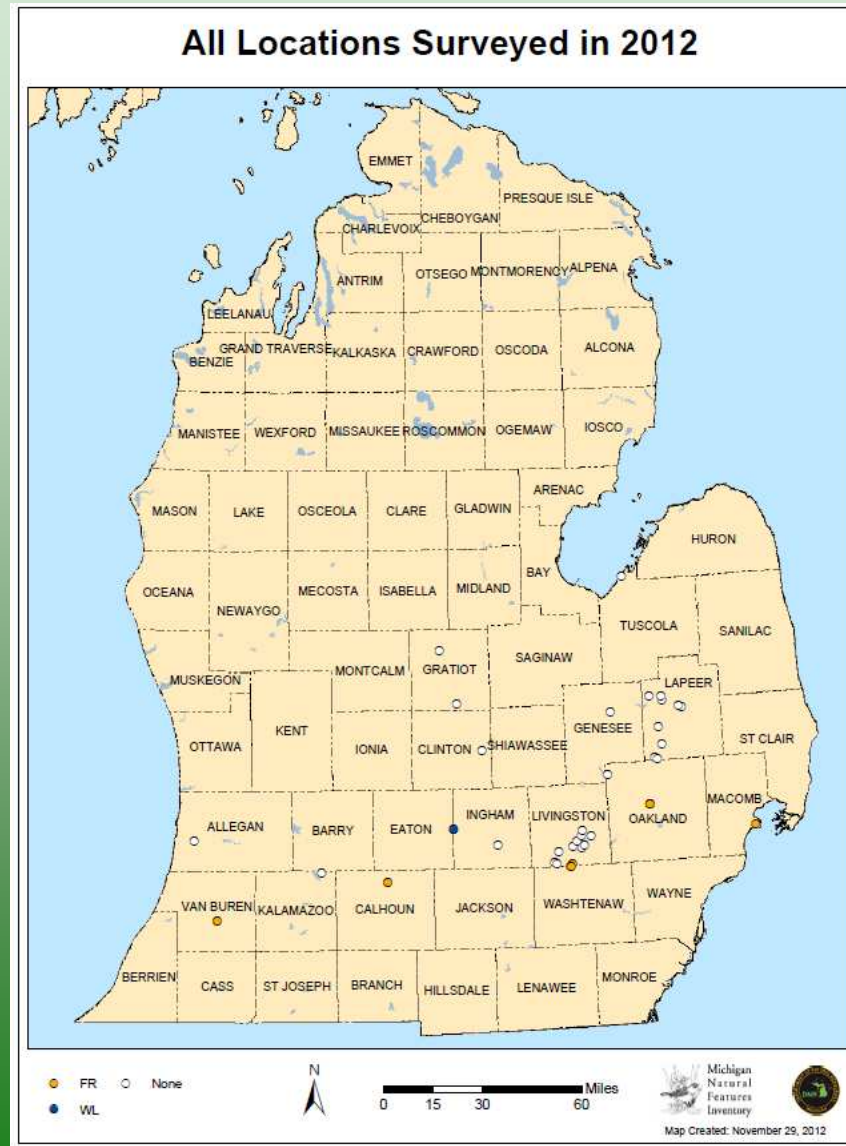
*17 sites from 2011 revisited
(not shown)

1 FR false positive

1 FR false negative

4 WH detected at same
locations (2 not revisited)

0 WL detected at 1 of 2 sites
revisited



More data will be available soon at www.michigan.gov/invasivespecies

Rapid Response

Two flowering rush sites in Oakland County chemically treated in 2012

- Trial treatments based on research and collaboration with industry
- AquaNeat (2% glyphosate final mixture) with surfactant
- Backpack spray application in late fall
- Conducted from small boat by DNR staff
- Certified Commercial Pesticide Applicators
- Post treatment bi-weekly monitoring
- Chemical control permit received from DEQ ANC
- Use Permit from DNR Parks and Recreation (for Highland SRA)
- Permission from private landowners (time consuming and difficult)

Water hyacinth and water lettuce plants physically removed when detected

- Safety precautions limited complete removal during initial assessments
- Conditions varied greatly at each site
- Return visits with better equipment planned for 2013

Rapid Response

Large scale treatments planned for 2013

- Review treatment success at FR trial sites
 - Top kill noticed in Fall 2012, monitor for emergence in 2013
 - Compare glyphosate treatment with other 2012 treatments (e.g. DNR PRD Imazapyr)
- Demonstration sites at 4 Managed Waterfowl Areas
 - Ability to train various staff on identification and treatment techniques
- Outlier FR and EFB sites high priority
 - Grant specific requirement
 - Oakland County flowering rush
 - Saginaw Bay European frog-bit
- Enhanced water hyacinth and water lettuce removal at known sites
 - Kayaks and small boats used during some initial assessments
 - Revisit with appropriate boat and retrieval equipment
- Pre-approved aquatic weed management vendor list being developed
 - Quicker and easier procurement of contract treatments (SOM purchasing requirements)
 - Ensure future treatments are consistent with successful techniques
- New detections evaluated and prioritized in real time
 - Additional surveillance planned for 2013

Continued Collaboration

- Midwest Invasive Species Information Network
 - Increase reporting capacity through current contract with Michigan State University
 - Add 10 aquatic plant species
 - Develop email alert system for new reports
- Michigan Aquatic Managers Association
 - Increase industry participation in monitoring and reporting AIS through education and outreach programs and materials
- Michigan Inland Lakes Partnership
 - Enhance existing monitoring efforts with volunteer groups and lake associations through education and outreach and improve upon reporting and verification processes.
- Michigan Natural Shoreline Partnership
 - Provide training for landscape industry for monitoring and development of BMPs to reduce AIS spread
- State of Michigan Employees
 - Increase monitoring/awareness of any relevant field staff (as available)
- Federal Partners
 - Identify and engage federal partner agencies for future collaboration

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Questions?



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